

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

2 HD1476.46
5622

SMALL FARM digest

VOLUME 6, NO. 1 – FALL/WINTER 2002/2003

The Thought Process in Selecting Equipment for the Small Farm

The guest author of this issue's feature article is Ronald E. Macher, Farmer/
Publisher of Small Farm Today Magazine.

If agriculture is to become profitable again, sustainable agriculture, which is based on low-input technology, offers an alternative to the current myth of "bigger is better," a concept — as evidenced by recurring farm crisis situations — that is not sustainable.

Making wise decisions and purchases for the farm enterprise, such as using equipment designed for the smaller farm operation rather than standard large-scale equipment, may prove to be cost effective.

To be successful in farming today depends on many factors — most importantly a carefully thought-out plan of action. Farmers need to carefully consider the size farm they have and what kind of crops or livestock they intend to raise before making purchases, including equipment. Small-scale growers require the right mix of labor-saving equipment to help make them competitive with bigger growers.

American farm equipment is mostly geared to bigger production units, so we do not see small-scale farm equipment being made in the U.S. A wide range of small-scale farm machinery is available to the small producer mostly from overseas manufacturers. U.S. suppliers carry this equipment as well as parts.

Modified equipment, such as tools scaled to the hand size of women, as more women enter farming, is also available. There are many ways to convert farm machinery to the particular needs of your farming or ranch operation.



University of Kentucky Extension Associate Larry Swartz demonstrates the mini hay baler, using the 2-wheel tractor, as part of a USDA/CSREES SARE training grant.—PHOTO BY BETTY S. KING, UNIVERSITY OF KENTUCKY.

Disappearing Middle. E.F. Schumacher, author of the book *Small is Beautiful*, talks about the "law of the disappearing middle" — as technology increases, we are left with primitive, simplistic tools on one hand and complex, sophisticated technology on the other.

The same thing is happening in agriculture. Our dualistic agricultural economy is dividing up into small farms and large farms, with midsize farms being squeezed out because of economics and technology.

Midsize farmers are too large to work both in town and on the farm, and too small to be competitive in the commodities markets of corn, wheat, and soybeans. The answer to this problem is two-fold: economics and technology. You cannot avoid change, but farmers do not have to participate in change in the current direction.

Small farmers are the future. The average age of a farmer today is 55. Sometime over the next 10 years as they

retire, there will be massive land areas for sale. Larger farmers will buy some land, corporations some — although only what is necessary for facilities, because their profit is in processing and marketing. But there will be lots of land available for small farmers.

How will beginning farmers whose fathers did not farm learn basic farming skills? Where will these beginning farmers acquire this knowledge? They can start learning from books, doing lots of reading; visiting ongoing farming operations in their area; and working for farmers doing what the beginning farmer wants to do.

Attending trade shows and conferences gives you exposure to equipment choices, products, and services, and a chance to meet with successful small farmers. Another effective way to learn is to get a mentor from your area of farming interest.

In talking about tools for the small

CONTINUED ON PG. 2...

farm in a sustainable way, we must consider "the big picture" or the whole, the rhythm or peaks and valleys of labor needed, and buy only that machinery we absolutely need for an efficient operation.

You need good quality tools, and you must know when and how to use them, plus any limitations or advantages of one tool or technique of doing a task over another tool or technique.

Everybody assumes you need to have a thousand acres, a million dollars, and lots of machinery to be a successful farmer. None of this is true. The large acreage and big machinery do not guarantee your success as a farmer. A farm's profitability comes from the farmer's management and marketing abilities.

This writer defines a small farm as one that is of 179 acres or less in size or earns \$50,000 or less in gross income per year. Most of America's nearly two million farms meet this definition of "small," with 7 out of 10 grossing less than \$50,000 per year. (*Editor's note:* The National Commission on Small Farms in *A Time To Act: A Report of the USDA National Commission on Small Farms* recommends as a definition for small farms those farms with sales of less than \$250,000 in gross sales, which comprise 92 percent, or 1.9 million, of all farms in the U.S.).

Sustainable agriculture evolves from those two thoughts — management and marketing. Sustainable agriculture is a thinking man's agriculture — involving the whole picture of what the farm is and what it produces and why. Machinery and tools are part of the thinking process, which asks, "What do I need to get the job done?" and "Is it profitable for me to own, lease, or rent this tool or piece of equipment?"

Small Farm Technology. While it may not be easily obtained, there is technology that exists or has existed in the past that is very appropriate for small farms, and many new items are becoming available as the small farm movement increases.

Just because it is old does not make it

obsolete, however, and just because it is new does not make it better. How many times have you seen an older farmer accomplish more work in the same time period as his younger counterparts who have more strength and youth on their side? It is technique, whether it is on a tractor or with a hoe.

In many ways, European and developing nations are ahead of the U.S. in developing tools and machines that are appropriate to small farms. Many of these "new" tools are merely a modernized version of older machinery with a new twist. Some are brand new, but appropriate in size to small farms.

How much work can you do with existing older equipment? A 30-hp tractor will handle a 2-bottom plow, 8-foot disk, 2-row cultivator, and a pull-type 5-foot header combine. You could plow 5 to 8 acres per 10-hour day, an 8-foot disk would work 15 to 23 acres per day, or you could cultivate 20-25 acres a day or combine 8 to 13 acres per 10-hour day.

In more modern, midsize farm terms, older combines with 15-foot headers can be purchased for \$5,000 to \$7,500, combining 500 to 600 bushels/hour. Two of the combines could be purchased for about \$15,000 and could handle 1,000 acres, half corn and half beans, versus today's modern combine costing about \$240,000.

Small farms need tools and equipment that are appropriate for the size and scale at which they are operating. Almost as importantly, small farmers need instruction in the techniques of using these tools and equipment to accomplish the most amount of work in the least possible time, without depleting themselves, their pocket books, or their farms.

The big question for beginning and small farmers is "What equipment do I need?" Machinery is any piece of equipment or tool — including hand tools — that makes the job easier, faster, and better, saving time or labor or both. Hoes, wheel hoes, two-wheel tractors, or four-wheel tractors are all machinery, each with advantages and disadvantages.

Small Farm Digest is published twice a year by the Cooperative State Research, Education, and Extension Service, United States Department of Agriculture (USDA), Washington, DC 20250-2220.

The Secretary of Agriculture has determined that this periodical is necessary in the transaction of public business required by law.

Ann M. Veneman, Secretary
U.S. Department of Agriculture

Joseph J. Jen, Under Secretary
Research, Education, and Economics

Colien Hefferan, Administrator
Cooperative State Research, Education, and Extension Service

Stephanie Koziski *Editor* (202/401-6544)
Dave McAllister *Staff Writer/Editor* (202/720-7185)
Arabella Juarez *Art Director* (202/720-4338)

Readers wishing to contribute items to *Small Farm Digest* may send their submissions to Stephanie Koziski, Editor, *Small Farm Digest*, CSREES, USDA, Mail Stop 2216, 1400 Independence Ave., S.W., Washington, DC 20250-2216 (or call 202-401-6544; fax 202-690-0289; e-mail skoziski@reeusda.gov). Unless otherwise stated, information in this publication is public property and may be reprinted without permission.

Reference to any commercial product or service is made with the understanding that no discrimination is intended and no endorsement by the U.S. Department of Agriculture is implied.

Small Farm Digest is available on the CSREES home page (<http://www.reeusda.gov/smallfarm/>). Subscriptions to *Small Farm Digest* are available to the public at no charge. To subscribe, discontinue a subscription, or change an address, contact Small Farm Program, Economic and Community Systems, U.S. Department of Agriculture, Mail Stop 2215, 1400 Independence Ave., S.W., Washington, DC 20250-2215 (or call 202-401-6544 or 800-583-3071; fax 202-690-3162). For an address change, please include your *Small Farm Digest* mailing label.

Small Farm Digest is printed with soy-based ink on paper containing a minimum of 50 percent waste paper. *Small Farm Digest* is recyclable.

CSREES, Small Farm Program Staff
Denis Ebodaghe *National Program Leader* (202/401-4385 or debodaghe@reeusda.gov)
Stephanie Koziski *Editor*, *Small Farm Digest* (202/401-6544 or skoziski@reeusda.gov)
Geneva Blyther *Office Automation Assistant* (202-720-7948 or gblyther@reeusda.gov)

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Ave., SW, Washington, DC 20250-9410, or call 202-720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

CSREES Small Farm InfoLine
1-800-583-3071

The first decision to make about machinery is the level of use for it. Listed below are rough guidelines for five different scenarios to help guide your planning. These do not include all costs, or labor, seed, feed, or interest; they are simply tools for thought.

Scenario 1. Grow your own food (1 to 2 acres and house)

- Need little to no machinery
- Good hand tools (hoe, shovel, pitchfork, wheelbarrow, high-wheel or low-wheel hoe), \$200, and rear tine tiller, 5 hp, \$500
- Self-education is a tool — education about raised bed and bio-intensive mini-farming
- Read all you can about growing, harvesting, and preserving your food
- Seed starting rack for growing transplants, \$200

Total cost: \$900.

Total value of food produced: \$4,500.

Scenario 2. Grow your food and sell some surplus produce or plants (1 to 5 acres and house)

- Rear tine tiller, 8 hp to 10 hp, \$1,000 to \$1,700
- Small greenhouse, \$500
- 2- or 4-wheel wagons, \$200
- Planter — push type, \$75
- Wheel hoes, \$75

- Hand tools, \$500
- Self-education: tools, books, magazines, guides, \$250

Total cost: \$3,300.

Net is \$3,000 to \$15,000.

Scenario 3. Small farm market garden (5 to 10 acres and house)

- Rear tine tiller, 8 to 10 hp, \$1,000 to \$1,700
- Small greenhouse, \$500
- Hoop house, \$500
- 2- or 4-wheel wagons, \$200
- Planters, push-type and tiller-mounted, \$75 to \$200
- Wheel hoes, \$75
- Hand tools, \$500
- Self-education, tools, books, magazines, \$250

Total cost: \$3,925.

Net: \$8,000 to \$40,000.

Scenario 4. Small farm market garden and livestock product (10 to 80 acres and house)

- 20-50 hp used tractor, \$9,000
- Rear tine tiller, 8-10 hp, \$1,000 to \$1,700
- Small green house, \$500
- Hoop house, \$500
- 2- or 4-wheel wagons, \$200
- Planters or 2 row, 3 pt. hitch for tractor, \$50 to \$200
- Push planter, \$75
- Portable building for hogs, cattle,

- or poultry or use existing building
- Plow, 1 or 2 bottom, \$150 to \$200
- 6-foot tandem disk, \$400
- 2-row cultivator, 3 pt. hitch, \$150
- Rotary hoe, 2-row, 3 pt. hitch, \$150
- Blade, \$100
- 40-inch tractor tiller, 3 pt. hitch, \$1,000
- Brush hog, \$500
- 7-foot sickle bar, \$300
- Hay rakes, \$600
- Small round baler, \$200
- 1-row corn picker, \$100
- Pull-type combine, 5-foot header, \$600
- Self-education tools, \$250
- Machine shed, \$9,600 to \$16,475

Total cost: \$26,375.

Net: \$25,000 to \$100,000.

Scenario 5. Grazer's outfit: cattle, sheep or goats (40 acres and house)

- 50 cattle panels for corrals, pens, etc., \$750
- Electric fence posts, wire, etc.
- Assorted hand tools, \$500
- Water (ponds or above-ground water systems)
- Self-education (tools, books, guides, etc.)
- Perimeter fence, 8 paddocks, and water system

Total cost: \$6,494.

Net: \$3,000 to \$8,000.

In addition to using the scenarios above, you can analyze your farm size and planned usage versus your machinery costs. Say you have 40 acres — 20 acres of woods, 10 acres of pasture or hay ground, and 10 acres tillable for row crops or vegetables. The woods area might be used for fence posts, firewood, or building from rough-sawn lumber. You might even grow shiitake mushrooms, goldenseal, May apples, or ginseng.

So basically, almost all of your machinery costs must be charged against the 20 acres of hay pasture and cropland. Machinery for woods projects might be better rented, leased, or done as custom hire for specific projects as the windows of opportunity to get these jobs done is much longer than with crops.

A study of South Dakota and Nebraska ranches showed that the top 20% of these ranches made a return on investment equal to or better than the Fortune 500

companies for only two reasons: the percent calf crop sold and the dollars they had invested in machinery.

Sustainable Principle. This sustainable principle holds true for every type of agriculture. Production efficiency must be high and all costs, especially machinery costs, must be low. For a small farmer to be successful, he or she must be a producer, salesman, and marketer, and must sell all the farm production at retail prices.

Here is a glimpse of what new machinery is now available for small farms: a 2-row walk-behind combine that will fit in the back of a compact pickup; a square baler for a 20-hp tractor or a small round baler that fits on the front of a 2-wheel tractor.

In order to help farmers track down this hard-to-find equipment for sustainable farming, the author of this article is currently writing a book funded by USDA's Sustainable Agriculture Research and Education (SARE) program called *The Small Farm and*

Garden Equipment Catalog. It will provide descriptions of new and existing, older equipment, along with photographs and contact information about alternative equipment that is the appropriate size for small farms and gardens.

It will also include equipment for planning, harvesting, processing, composting, livestock, tree farming, orchards, vineyards, and aquaculture. *The Small Farm and Garden Equipment Catalog* will focus on equipment that is available for purchase in the U.S. and Canada.

The catalog will contain short stories that incorporate sustainable agriculture practices. As an example, the Grain Drills section will include a story about cover crops and crop rotations. The stories will describe the experiences of actual small farmers and will include how-to information to encourage farmers and gardeners with small acreage and to help them succeed.

Farmers can work their farm for about

half the cost if they are willing to walk behind their equipment, rather than riding on it. However, this smaller equipment can be very hard for the small farm owner or gardener to find. A small farmer who needs a four-wheel tractor can save a substantial amount of money by using a 20 hp, four-wheel tractor, rather than a 50 hp tractor.

The small farmer's most limiting factors for success are time and capital. Machinery frequently requires large amounts of both. Fixed costs on equipment that is

used infrequently is an expense that small farmers do not need and cannot afford if their operations are to be economically viable and thus sustainable.

So the question farmers must ask is not "What do I want?" but, instead, "What do I actually need?"

By reading *The Small Farm and Garden Equipment Catalog*, farmers may be able to keep farming and discover less costly and more efficient ways to farm sustainably. It should help them avoid debt and

increase their profitability, thereby encouraging economically sound, socially responsible farming.

By using this catalog, farmers and extension educators will be able to point small farmers to a resource about where alternative equipment can be purchased. The catalog should be published by the end of 2003. In the meantime, listed below are some companies that handle the new tools described above and many more products. ■

Small Farm and Garden Equipment Manufacturers

—The first eight listed specialize in small farm equipment. The rest offer small and/or medium-sized equipment. Overseas equipment dealers also supply readily available parts.

Ferrari Tractor CIE

P.O. Box 1045
Gridley, CA 95948
Phone 530-846-6401
<http://www.ferrari-tractors.com>

Imports and sells farm machinery from smallest scale to large scale; walking tractors 9 hp to 13 hp and 4-wheel tractors 21 hp to 87 hp; appropriately scaled implements for tillage, planting, cultivation, and harvest of most crops are supplied from worldwide sources.

Earth Tools

660 Mt. Vernon Ridge
Frankfort, KY 40601
Phone 502-226-5751
<http://www.bcsmallfarmequip.com>
BCS 2-wheel tractors and other applicable attachments for small-scale farming: hay rakes, balers, etc.

Holland Transplanters

510 E. 16th Street
Holland, MI 49423
Phone 616-392-3579 or 800-275-4482
<http://www.transplanter.com>
Transplanters and mulch equipment

BDI Machinery Sales Co.

430 E. Main St.
Macungie, PA 18062-1713
Phone 610-966-2444 or 800-808-0454
Vegetable, small fruit, orchards, vineyards and nursery equipment

AFIVEPLUS, Inc.

Rt. 2, Box 297
Torrington, WY 82240
Phone 307-534-1818
Manufacturer of potato seed cutters, 1- & 2-row potato planters and 1-row root vegetable diggers

Stephens Sales Co.

3061 S. 12th Rd.
Humansville, MO 65674
Phone 417-754-2578
Saukville tractor, equipment for small farms

Earth Power Equipment

P.O. Box 8396
Columbus, OH 43201
Phone 614-294-4618
Goldoni 2-wheel tractors, walker riding mowers, custom/standard sprayers

Agriquip

P.O. Box 250
Lindale, GA 30147
Phone 706-234-0454
<http://www.agriquip.com>
Mini hay balers, mowers, and rakes for 15-30 hp tractors

Tractor Manufacturers/Importers:

Belarus Tractor International, Inc.

7075 W. Parkland Ct.
Milwaukee, WI 53223
Phone 800-356-2336
<http://www.belarus.com>
Low-cost Belarus tractors from 20 to 150 hp

Case IH

700 State St.
Racine, WI 53404
Phone 262-636-6011
<http://www.caseih.com>
Manufacturer of agricultural equipment

Deere & Company

One John Deere Place
Moline, IL 61265-8098
Phone 309-765-4714
<http://www.johndeere.com>
John Deere tractors

Kubota Tractor Corporation

3401 Del Amo Blvd.
Torrence, CA 90503
Phone 888-4KUBOTA
<http://www.kubota.com>
Kubota tractors and implements

Landini USA, Inc.

3675 Crestwood Parkway,
Suite 505
Duluth, GA 30096
Phone 678-924-9885
<http://www.landiniusa.com>
Landini wheel tractors and agricultural crawlers — 30 to 160 hp

Mahindra USA, Inc.

17723 FM 2920
Tomball, TX 77375
<http://www.mahindrausa.com>

New Holland North America

500 Diller Ave.
New Holland, PA 17557-0903
Phone 888-290-7377
<http://www.newholland.com/na>

Panorama Inc.

P.O. Box 415
Gibson City, IL 60936
Phone 800-392-2386
<http://www.panoramafarmequipment.com>

Robison & Grissom Tractor Co., Inc.

1013 Hwy 348 West
Guntown, MS 38849
Phone 662-869-1028
<http://www.tafetractors.com>
Tafe tractors, U.S. distributor

Trans Tech International, Ltd.

P.O. Box 7275
Canton, OH 44705
Phone 877-623-7701
<http://www.speedex.com>
Supplier of Speedex tractor parts and equipment

Zetor Tractor Division,

American Jawa Ltd.
7301 Allentown Blvd.
Harrisburg, PA 17112
Phone 717-540-5618
<http://www.amjawa.com>
Zetor tractor importer; Century brand smaller tractor

Beaver Mfg. Co.

P.O. Box 297
Marshville, NC 28103
Phone 704-624-2580
Beaver high-wheel cultivators

Denman & Company

401 W. Chapman Avenue
Orange, CA 92866
Phone 714-639-8106
Red Pig No. 1 low-wheel hoes, Beaver high-wheel hoes, Tamarack rotary cultivators

Earthway Products, Inc.

1009 Maple Street
P.O. Box 547
Bristol, IN 46507
Phone 800-294-0671
fax 800-678-4868
<http://www.earthway.com>
Kentucky high-wheel cultivators

Lambert Products

1117 S. 3rd, Box 278
Ansonia, OH 45303
Phone 937-337-3641 Ext. 101
<http://www.lambertproducts.com>
Lambert high-wheel cultivators for small garden consumers; many other types of equipment

Your Small Farm Neighbors **'Low-tech' Farming** **Jason and Jolene Vanneste** **Riley, Michigan**

Jason and Jolene Vanneste, both Michigan State University graduates, have as their 10-year business plan the goal of farming sustainably full-time. On their 47-acre "Hickory Corner — Vanneste Ecological Farm" in Riley, MI, near Lansing, they farm using as few inputs as possible, relying on old ecological farm practices rather than the use of high-end pesticides and herbicides.

"I rely on Grandpa and Grandma's knowledge of old farm wisdom wherever possible," says Jason Vanneste.

"Small operators have trouble finding the right equipment," he says. "As a young farmer just starting out, it's been somewhat challenging developing a network of farming people to consult for sustainable information. The hardest items to find are answers to questions regarding the traditional farming techniques, materials, and knowledge that older farmers once practiced.

"We've been fortunate in that people are becoming aware of Hickory Corner and slip us articles and old texts that contain traditional farming ideas that have gone by the wayside — like designs and concepts for old chicken coops and practical feed programs."

Vanneste adds that in his rural area of Michigan "small farmers are discussing the benefits of forming cooperatives in order to effectively distribute their collective products. Retired farmers, family, and neighbors who were/are professionals in trades where their skills complement agriculture have proven invaluable to us.

"This group's generous time, efforts, and skills in helping to design and repair small-end buildings and equipment is a testimony to the age-old theory that agriculture can be the foundation of a community. Jolene and I wholly enjoy the satisfaction our teammates display when receiving our farm-fresh eggs, poultry, vegetables, or crafts



Nadine Beard and Jason and Jolene Vanneste use a variety of equipment on their Michigan farm. Beard (left) drives a golf cart to get to the orchard for watering. The wheeled chicken trailer is used as part of the rotational pasture system. —PHOTO BY KATE JANNERETH.

for their services."

Asked about essential tools for the small acreage owner, Jason Vanneste suggests that a golf cart can be a surprisingly useful tool to have on the farm.

"Nadine Beard, our grandmother who also lives on the farm, drives a used battery-powered golf cart to water our newly planted orchard of heritage fruit trees, using an on-board 35-gallon tank.

"We have found that a generator would also be an important tool for maintaining the freshness of meats, eggs, and produce during electrical outages.

"As we grow into the final facet of production, raising our own grains for an on-farm feed program, several additional tools will be useful. An economical self-propelled combine would be handy but difficult to locate regionally. Small farmers would benefit from manufacturers fabricating micro combines, reapers, or binders at reasonable prices.

"Low-tech tools like pitchforks and European-style scythes are still important assets for this generation's small farms," says Vanneste. "Sturdy perimeter fencing is an enormously important tool for a small farm pasture-oriented system. We supplement our perimeter

fencing with plastic step-in posts used to divide the interior to fulfill our MIG (managed intensive grazing) strategies. Step-in fencing is a labor-friendly solution and can be affordably set up with wire electrified by a small, portable solar charger."

Jason Vanneste laments that not many people under 40 are taking up farming because the trend is toward large-scale operations.

"Better than half the work in farming is mental," he says. "Planning is the key to being successful. In considering tools for the small producer, thinking about the long-term benefits of management practices, like pasture rotation, aids in the decision-making process about which tools to purchase. It is important to continue the frugal practice of designing our operations to make full use of practical tools that are readily maintained with age-old agricultural skills, like sharpening, carpentry, and smithing."

"The old-time small round 'Tootsie Roll' hay baler would roll hay without delivering an impact that knocks off a significant portion of seeds the animals are searching for. Amish farmers have purchased a majority of these machines

in our area. Since the technology exists for these small round balers, a U.S. manufacturer could take the sound technology that already exists and make some modest improvements.

"For example, improvements with regard to live power take-off features would address time considerations. My philosophy is the fewer bells and whistles the better. People do not always need high-tech, state-of-the-art equipment.

"Other essential tools are Rototillers, for somebody just starting out practicing raised bed gardening, wheelbarrows, hoes, trellises for gardening in small places, a welder, sharp knives, and grinding stones."

Small barns are another tool for the small producer that Vanneste endorses.

"Small buildings fulfill a specialized purpose — while costing less to construct in time, materials, and added labor," he said. "Being able to utilize the vertical space for hay storage is an added benefit that small-scale livestock producers can capitalize on within a small-scale budget. There are many

alternative construction methods and materials, like straw-bale framing, that are plentiful regionally and could prove to be practical solutions for the small farmer."

While recognizing that developing a farm is a process of building skills and experiences, the Vannestes would love to be at a point where horses play a significant role in their operation.

"The key to raising healthy animals," says Jason Vanneste, "is to try to simulate their natural environment. For example, chickens, which originated from feral fowl, can be healthfully raised on open pasture or in chicken tractors — a moveable small skid that could fit over garden beds — an idea credited to Andy Lee, farmer and author of books on poultry production.

"We have built 4' x 8' coops over small utility trailers assembled here on our farm that ultimately house flocks of poultry that are moved from pasture to pasture. Chickens raised humanely without chemicals or artificial stimulation are healthier themselves — and for the consumer — than chickens raised in

big factory-type settings.

"Ultimately, sustainable practices will prove more profitable to the farmer and his/her community, while fetching a fair price among a growing number of health-conscious consumers," he adds.

Vanneste says that diversification is important for the small grower. He talks about how important it is to preserve agricultural land from urban development, to keep corridors open to wildlife, and for customers to buy fresh, locally grown food.

"By adding value (producing a complete good, e.g., processed poultry, jams, cider, bouquets, or honey) to their product, farmers can receive a living wage and erase the dependence the industry has placed on the federal subsidy program.

"Fewer dollars spent on high-tech equipment and more emphasis placed on the 'God-given' tools will keep the spirit, fun, and culture, in agri-culture."

This farm family finds farming a rewarding lifestyle. ■



PRINT MEDIA

Farm Machinery: Practical Hints for Handy-Men by J. Brownlee Davidson and Leon Wilson Chase. This complete, no-nonsense guide, written at the turn of the century, presents both the mechanical principles and the origins of farm machinery that have directly influenced the development of farming in America. Cost: \$12.95 plus shipping. To order, contact Lyons Press, 246 Goose Lane, Guilford, CT 06437 (see <http://www.lyonspress.com> or phone 800-243-0495).

Fundamentals of Machine Operation: Combine Harvesting. A John Deere publication that describes how to operate, maintain, and improve the efficiency of your combine. Cost: Textbook \$27.95 FMOI5I04NC; Instructor Guide \$39.95 FMOI5504T; Student Guide \$16.95 FM-15604W. To order, contact Deere & Company, Moline, IL at 800-5227448.



The Operation, Care, and Repair of Farm Machinery. This classic, comprehensive textbook, originally published in the early 1900s and authored by John Deere, was intended to assist farm mechanics instructors in their courses. This was the first book on the subject to deal exclusively with the operation, care, and repair of farm machines. The book offers detailed information and instruction on how to use and care for dozens of different machines, including: plows, harrows, tillers, spreaders, cultivators, sowers, diggers, harvesters, pickers, presses, mowers, binders, planters, pulverizers, loaders, drills, listers, and rotary hoes. Cost: \$12.95 plus shipping. To order, contact Lyons Press, 246 Goose Lane, Guilford, CT 06437 (see <http://www.lyonspress.com> or phone 800-243-0495).

Used Farm Equipment: Assessing Quality, Safety, and Economics (NRAES-25 Publication). Written by James W. Garthe, Dennis J. Murphy, and William K. Waters, this 34-page handbook, highlighted with 90 detailed illustrations, shows how to inspect machinery for the reliability of its components and the quality of its safety features. It covers the economics of owning and operating used machinery and the methods of acquiring equipment. Several farm safety tips are highlighted. Cost: \$7.00 plus \$3.75 shipping. To order, contact NRAES, 152 Riley-Robb Hall, Cornell University, Ithaca, NY 14853-5701 or phone 607/255-7654 or e-mail nraes@cornell.edu.

Successful Small-Scale Farming: An Organic Approach. Written by Karl Schwenke and edited by Ben Watson, this handbook contains everything small farm owners need to know, from buying land to organic growing methods and selling cash crops. The book offers clear and detailed descriptions of crops, equipment, soils, farming procedures, and more. Cost: \$10.47 through <http://www.Amazon.com>.

A number of grant, loan, and training programs are available to support small farmers and their communities. Examples of such programs are summarized below. Readers wishing additional information are asked to contact the individuals or offices listed for each item.

CORRECTION: In the last issue of *Small Farm Digest* (Vol. 5, No. 2, Spring/Summer 2002), the phone number for the National Council of State Agricultural Finance Programs, in Springfield, IL, which offers the Aggie Bond program, was in error. The correct number is 217-782-5792.



GRANTS, LOANS, TRAINING

USDA's Sustainable Agriculture Research and Education (SARE) Program offers grants to eligible applicants in four regions (Northeast, North Central, Southern, and Western).

Northeast Region (SARE) Program (CT, DE, ME, MD, MA, NH, NJ, PA, RI, WV, VA, VT, DC). For information, contact NE Region SARE, Hills Building, University of Vermont, Burlington, VT 05405-0487; phone 802-656-0471; e-mail nesare@zoo.uvm.edu.

Farmer/Grower Grants test new crops, practices and systems through on-site experiments and share the results with other farmers. Grants average about \$5,200 and are capped at \$10,000.

Partnership Grants are awarded for on-farm research and demonstration projects developed by agricultural professionals who work directly with farmers. Grants are capped at \$10,000.

Research and Education Grants are for applied research into improved farm practices, particularly projects where researchers, farmers, and educators work cooperatively. Grants are typically funded for between \$30,000 and \$150,000. A pre-proposal is required in mid May.



Professional Development Grants help Cooperative Extension Service educators and other agricultural professionals learn and transmit knowledge that helps farmers move toward greater sustainability. Grants typically run between \$15,000 and \$120,000. A preproposal is required in mid May.

USDA's Rural Business-Cooperative Service (RBS) provides funding for Appropriate Technology Transfer for Rural Area (ATTRA), a sustainable agriculture information service operated by the National Center for Appropriate Technology (NCAT), a nonprofit organization. ATTRA is an information gateway that helps farmers gain access to a wide range of sustainable farming topics through its extensive selection of publications and resource lists. For small farm equipment, see "Resource Guide to Organic and Sustainable Vegetable Production," on ATTRA's Web site, available as a PDF download as well as HTML. The weed control section points to cultivation tools and implements. You may also search the ATTRA site for "equipment" and pull up other specialized ATTRA publications that address equipment. Call ATTRA for a handout on "Resources on Tools and Equipment" by Steve Diver, agricultural specialist, or ask for Teresa Maurer to talk about projects on farm tools and equipment scaled for women farmers. Phone 800-346-9140 or go to <http://www.attra.ncat.org>.

Size Appropriate Technology for Farmers Project at University of Kentucky. Because many farms are over-mechanized or equipment is inappropriately sized for hill and small-scale farmers, this project provides hands-on training directly to farmers, extension agents, and small farm assistants in identifying, adapting, and using size-appropriate technology that matches their specific farming operation. Equipment needs are considered along with farm size, soil, and terrain type. The two-wheel tractor, widely used on small farms in Europe, as well as mini hay balers, portable sawmills, and solar-powered fencing and watering systems are being explored for small farmers in Kentucky and applicability to other parts of America. Questions and feedback on size-appropriate technologies that have worked well for other farmers can be directed to Dr. Betty S. King, Project Director, at e-mail bking@uky.edu; U.S. mail 507 Garrigus Bldg., University of Kentucky, Extension Service and Economic Development Programs, Lexington, KY 40506; phone 859-257-3404; or fax 859-257-1164.

CSREES-Funded Grant to North Carolina A&T State University Provides for Farm Equipment Safety Instruction. CSREES funded a 1-year project, "Farm Safety Education Needs in North Carolina," to teach state farmers about farm machinery safety. The project director, Dr. M.J. Ibrahim, does outreach work at county agricultural fairs, at workshops, and in other settings, emphasizing chain saw and tractor safety and operation, including attaching equipment to tractors and tractor roadway driving. A farm safety brochure is available, and farmers can call Ibrahim (phone 336-334-7956) with technical questions related to farm equipment maintenance and safety.

EVENTS

See Small Farm website (<http://www.reeusda.gov/smallfarm>) for the most up-to-date listing of events. We welcome submissions of events from our subscribers that would be of interest to the small farm community so that our Upcoming Events listing reflects a diversity of events from all regions of the country.

Please send submissions to Stephanie Koziski, Editor, *Small Farm Digest*, CSREES, USDA, Mail Stop 2216, 1400 Independence Ave., S.W., Washington, DC 20250-2216 (phone: 202/401-6544; fax: 202/690-0289; e-mail: skoziski@reeusda.gov).



Postage and Fees Paid
U.S. Department of Agriculture
Permit G-95

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

S2 P21 *****3-DIGIT 207
PATRICICE KRUG
ARS USDA
National Agricultural Library
10301 Baltimore Ave
Beltsville MD 20705-2351

Material	Material Name	Material Description	Material Quantity	Material Unit	Material Price	Material Value	Material Type	Material Category	Material Subcategory	Material Code	Material Status	Material Location	Material Date	Material User	Material Remark
1	Steel	Steel Plate	1000	kg	1000	1000	Steel	Steel	Steel Plate	001	Active	Warehouse	2023-10-27	Admin	
2	Steel	Steel Pipe	500	kg	500	500	Steel	Steel	Steel Pipe	002	Active	Warehouse	2023-10-27	Admin	
3	Steel	Steel Rod	200	kg	200	200	Steel	Steel	Steel Rod	003	Active	Warehouse	2023-10-27	Admin	
4	Steel	Steel Sheet	1500	kg	1500	1500	Steel	Steel	Steel Sheet	004	Active	Warehouse	2023-10-27	Admin	
5	Steel	Steel Wire	300	kg	300	300	Steel	Steel	Steel Wire	005	Active	Warehouse	2023-10-27	Admin	
6	Steel	Steel Bolt	1000	kg	1000	1000	Steel	Steel	Steel Bolt	006	Active	Warehouse	2023-10-27	Admin	
7	Steel	Steel Nut	1000	kg	1000	1000	Steel	Steel	Steel Nut	007	Active	Warehouse	2023-10-27	Admin	
8	Steel	Steel Washer	1000	kg	1000	1000	Steel	Steel	Steel Washer	008	Active	Warehouse	2023-10-27	Admin	
9	Steel	Steel Flange	500	kg	500	500	Steel	Steel	Steel Flange	009	Active	Warehouse	2023-10-27	Admin	
10	Steel	Steel Bracket	200	kg	200	200	Steel	Steel	Steel Bracket	010	Active	Warehouse	2023-10-27	Admin	
11	Steel	Steel Angle	1000	kg	1000	1000	Steel	Steel	Steel Angle	011	Active	Warehouse	2023-10-27	Admin	
12	Steel	Steel Channel	500	kg	500	500	Steel	Steel	Steel Channel	012	Active	Warehouse	2023-10-27	Admin	
13	Steel	Steel I-Beam	200	kg	200	200	Steel	Steel	Steel I-Beam	013	Active	Warehouse	2023-10-27	Admin	
14	Steel	Steel H-Beam	1000	kg	1000	1000	Steel	Steel	Steel H-Beam	014	Active	Warehouse	2023-10-27	Admin	
15	Steel	Steel Z-Beam	500	kg	500	500	Steel	Steel	Steel Z-Beam	015	Active	Warehouse	2023-10-27	Admin	
16	Steel	Steel L-Beam	200	kg	200	200	Steel	Steel	Steel L-Beam	016	Active	Warehouse	2023-10-27	Admin	
17	Steel	Steel Tee	1000	kg	1000	1000	Steel	Steel	Steel Tee	017	Active	Warehouse	2023-10-27	Admin	
18	Steel	Steel Hat	500	kg	500	500	Steel	Steel	Steel Hat	018	Active	Warehouse	2023-10-27	Admin	
19	Steel	Steel C-Beam	200	kg	200	200	Steel	Steel	Steel C-Beam	019	Active	Warehouse	2023-10-27	Admin	
20	Steel	Steel S-Beam	1000	kg	1000	1000	Steel	Steel	Steel S-Beam	020	Active	Warehouse	2023-10-27	Admin	
21	Steel	Steel T-Beam	500	kg	500	500	Steel	Steel	Steel T-Beam	021	Active	Warehouse	2023-10-27	Admin	
22	Steel	Steel U-Beam	200	kg	200	200	Steel	Steel	Steel U-Beam	022	Active	Warehouse	2023-10-27	Admin	
23	Steel	Steel V-Beam	1000	kg	1000	1000	Steel	Steel	Steel V-Beam	023	Active	Warehouse	2023-10-27	Admin	
24	Steel	Steel W-Beam	500	kg	500	500	Steel	Steel	Steel W-Beam	024	Active	Warehouse	2023-10-27	Admin	
25	Steel	Steel X-Beam	200	kg	200	200	Steel	Steel	Steel X-Beam	025	Active	Warehouse	2023-10-27	Admin	
26	Steel	Steel Y-Beam	1000	kg	1000	1000	Steel	Steel	Steel Y-Beam	026	Active	Warehouse	2023-10-27	Admin	
27	Steel	Steel Z-Beam	500	kg	500	500	Steel	Steel	Steel Z-Beam	027	Active	Warehouse	2023-10-27	Admin	
28	Steel	Steel AA-Beam	200	kg	200	200	Steel	Steel	Steel AA-Beam	028	Active	Warehouse	2023-10-27	Admin	
29	Steel	Steel BB-Beam													